

# **ABSTRACT**

A free space tunable filter produces a passband output as a result of sequential processing by an array of narrowband tunable filters (NBTFs) each tuned to a slightly different frequency. The present invention is comprised of one or more stages having multiple interleaved sectors and comprising an array of NBTFs having a masked outer surface reflective coating. Stages cascading is used to increase the device figure of merit and single stages are partitioned into multiple sectors that process a specific interleaved region of the bandwidth. Final stage output group passband signals are combined in a multiplexer and tapped with a partially transparent photodetector.